UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,775	01/12/2004	Michael Ronald Miller	140525	1774

23413 7590 06/20/2007

CANTOR COLBURN, LLP
55 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

EXAMINER	
RAMIREZ, JOHN FERNANDO	
ART UNIT	**PAPER NUMBER**
3737	

MAIL DATE	DELIVERY MODE
06/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/707,775	MILLER ET AL.	
	Examiner	Art Unit	
	John F. Ramirez	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

After a review of applicant's remarks filed on April 17, 2007, the examiner of record acknowledges the amendment to the claims on pages 2-5. Accordingly, claims 21 and 22 have been added.

Applicant's arguments with respect to claims 1, 9 and 14 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6, 9, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariav et al. (2006/0087325) in view of Bowers (5,207,230).

Ariav et al. discloses an application of a sensor attached to an elastic band useful for X-ray imaging (paragraph 0061 and see figure 5) designed to be placed on the chest of a person to measure or detect the respiration or cardiac cycle rate of the person (see paragraphs 0160, 0162, 0080, 0081). Ariav et al. does not explicitly teach that the plastic cord or elastic band being substantially transparent to x-rays, a sensor coupled to an end of the plastic cord, the end of the plastic cord being configured to be disposed away from the chest of the person, and the sensor generating a measurement signal

indicative of an amount of displacement of the plastic cord during respiration by the person. In the same field of endeavor Bowers discloses a sensor that has a PVDF transducer film attached substantially along a polyethylene spiral cord device with separate and independent sensing elements which is particularly adapted to monitor respiration or diaphragmatic effort around the chest generating an output signal (col. 4, lines 12-40, col. 1, lines 5-12, see figure 1a).

Additionally, in response to applicant's arguments, that the sensor is coupled to an end of the plastic cord, and the end of the plastic cord being configured to be disposed away from the chest of the person is conventional in the art as evidenced by the Bowers Patent.

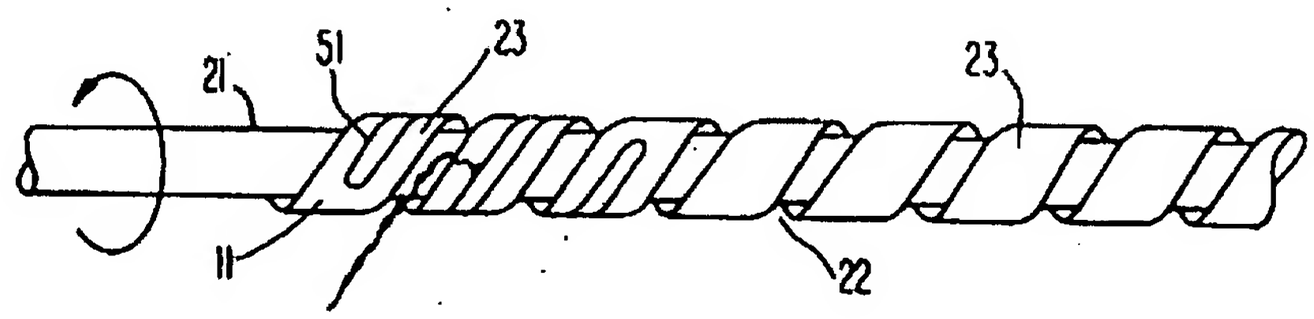

Fig. 2

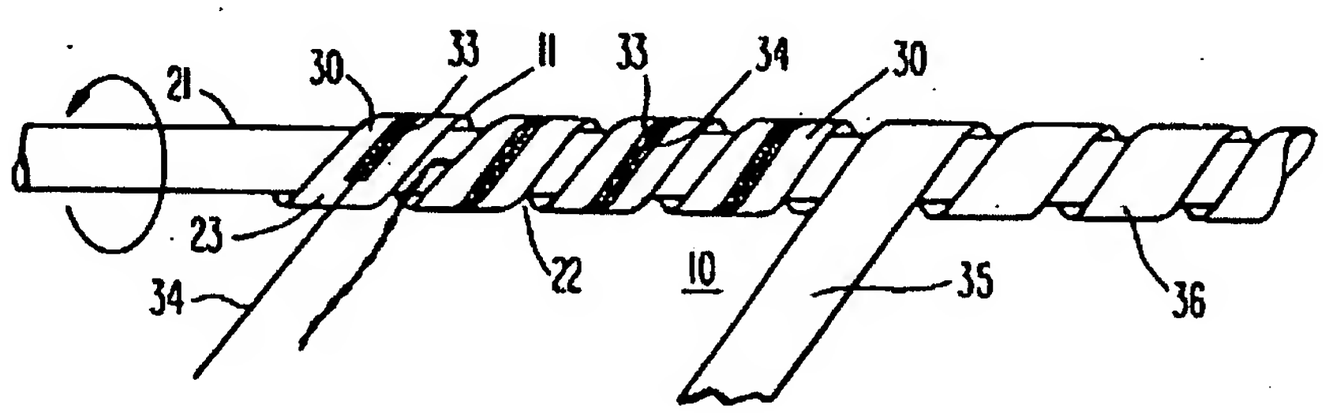

Fig. 3

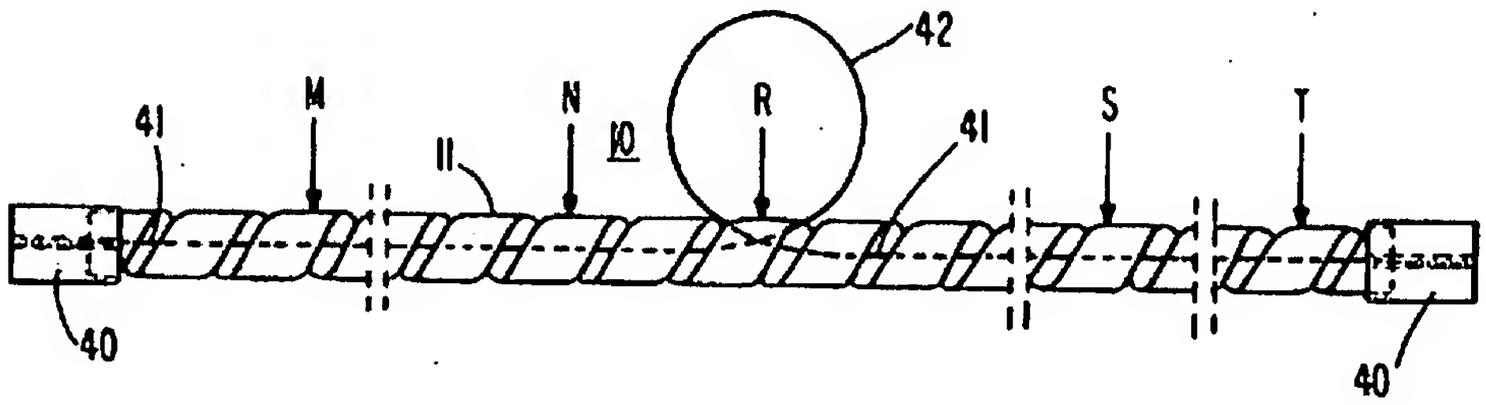

Fig. 4

Figures 2, 3 and 4 above, illustrate the conventionality of the sensor is coupled to an end of the plastic cord. Additionally, the specification in column 5, lines 30-55, and in column 5, lines 7-29), expressly discloses a sensor that is coupled to an end of the plastic cord.

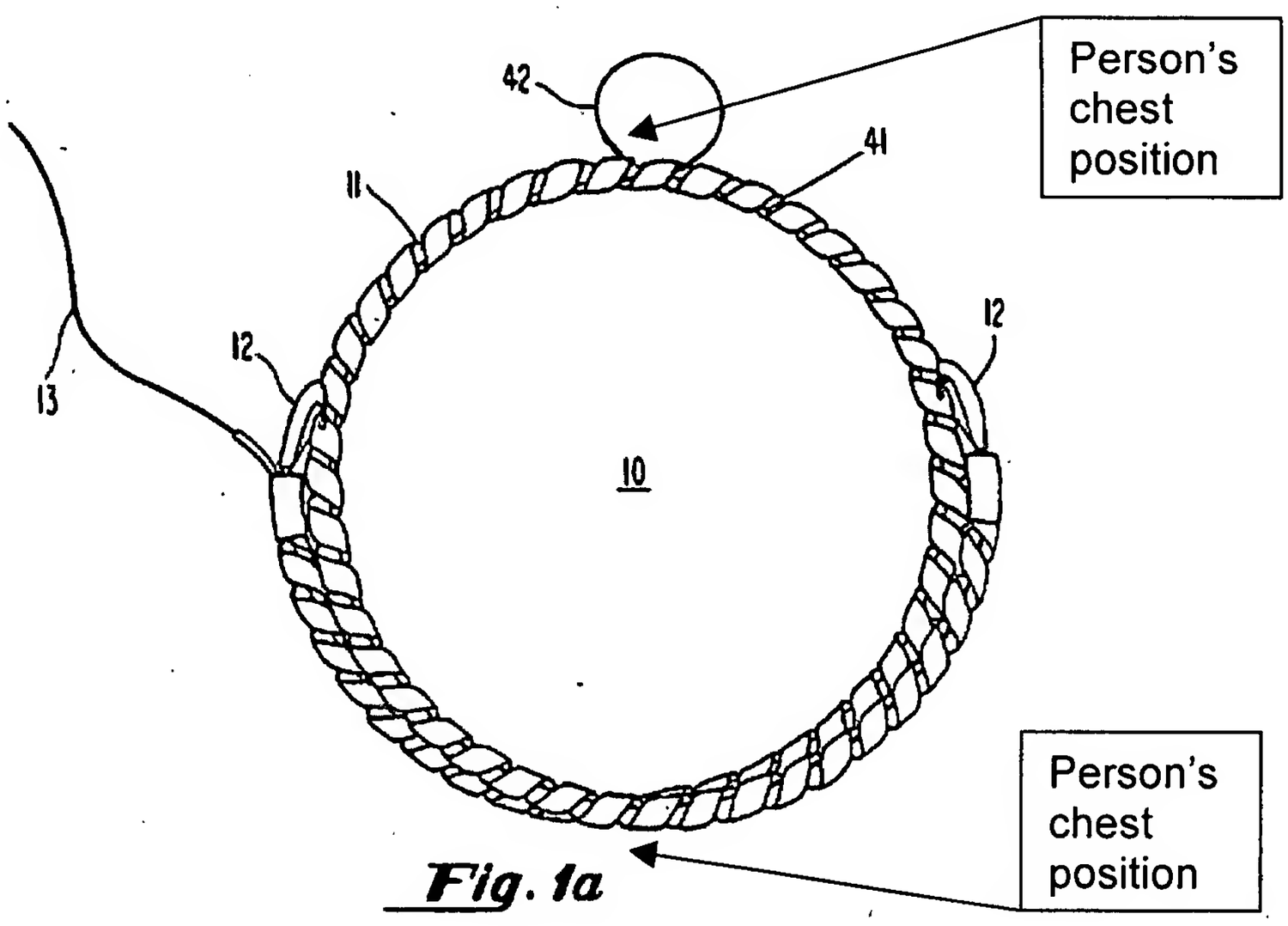

Fig. 1a

Figures 1a and 1b, illustrate the conventionality of the end of the plastic cord being configured to be disposed away from the chest of the person. In the specifications in column 4, lines 52-64, expressly discloses the end (12) of the plastic cord being configured to be disposed away from the chest of the person. As it can be seen from Figure 1a, the end (12) of the plastic cord (10) is disposed away from the chest. The position of the chest is either on the upper or lower portion of the spiral cord.

Based on the above observations, for a person of ordinary skill in the art, modifying the device disclosed by Ariav et al., with the above discussed enhancements

would have been considered obvious because such modifications would have a great effect in minimizing artifacts and interference in the recording of the signal by the sensing element.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 4, 5, 10, 11, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariav et al. in view of Bowers (US 5,207,230) and in further view of Zomer (US 5,235,989). Ariav et al., teaches all the limitations of the claimed subject matter as applied to claims 1, 9 and 14, except for mentioning specifically a plastic cord comprises a polypropylene string, a plastic tube configured to be placed across the chest of the person, the plastic cord being disposed in the plastic tube.

However, a plastic cord comprises a polypropylene string, a plastic tube configured to be placed across the chest of the person, the plastic cord being disposed in the plastic tube are considered conventional in the art as evidenced by the teachings of Bowers (US 5,207,230) and Zomer (US 5,235,989).

The Bowers and the Zomer patent teaches a plastic cord comprises a polypropylene string (see Bowers, figures 1-4, col. 2 lines 20-68) (see Zomer, figures 1-6, 11, col. 4, lines 39-46), a plastic tube configured to be placed across the chest of the

person, the plastic cord being disposed in the plastic tube (see Bowers, col. 4, lines 10-51).

Based on the above observations, for a person of ordinary skill in the art, modifying the system disclosed by Ariav et al., with the above discussed enhancements would provide a high quality output signal indicative of true respiratoty effort with minimum artifacts.

2. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariav et al. in view of Bowers (US 5,207,230), further view of Rasche et al. (US 6,865,248) and in further view of Sontag et al.(US 6,298,260). Ariav et al., teaches all the limitations of the claimed subject matter as applied to claim 1, except for mentioning specifically a device for generating a visual indication of respiratory function of the person based on the signal, and wherein respiratory function comprises a lung volume level.

However, a device for generating a visual indication of respiratory function of the person based on the signal, and wherein respiratory function comprises a lung volume level are considered conventional in the art as evidenced by the teachings of Rasche et al. (US 6,865,248) and Sontag et al. (US 6,298,260).

The Rasche et al. and Sontag et al. patent teaches a device for generating a visual indication of respiratory function of the person based on the signal (see (see Rasche et al. figures 3-5) (see Sontag et al. figure 5). Moreover, Sontag et al. teaches wherein respiratory function comprises a lung volume level (see abstract, figs. 3-5, element 26).

Based on the above observations, for a person of ordinary skill in the art, modifying the system disclosed by Ariav et al., with the above discussed enhancements would provide an accurate output signal by minimizing inaccuracies in the assumed spatial position of the tissue volume arising from displacements induced by the patient's respiration.

Allowable Subject Matter

3. Claims 7-8, and 20-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John F. Ramirez whose telephone number is (571) 272-8685. The examiner can normally be reached on (Mon-Fri) 7:30 - 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JFR

BRIAN L. CASLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700